IN THE CLAIMS

Please amend the claims as follows:

Claims 1-94 (Canceled).

Claim 95 (Currently Amended): A data classification method of classifying a group of data which a data storage unit stores into a plurality of sets in accordance with data values, comprising:

estimating [[a]] N boundary candidates (wherein N is an integer of 2 or more) for dividing said group of data into a first number of sets on the basis of said data values; and

extracting M boundary candidates (wherein M is smaller than N) and is used to divide said group of data into a second number of sets smaller than said first number, under a predetermined extraction condition, on the basis of said N boundary candidates.

Claim 96 (Previously Presented): The method according to claim 95, wherein said predetermined extraction condition includes a condition that said M boundary candidates are extracted on the basis of a magnitude of a data value indicated by each of said N boundary candidates.

Claim 97 (Previously Presented): The method according to claim 96, wherein said predetermined extraction condition includes a condition that a boundary candidate with which said data value is maximized is extracted.

Claim 98 (Previously Presented): The method according to claim 95, wherein said group of data are arranged at positions in a predetermined direction, and

said predetermined extraction condition includes a condition that said M boundary candidates are extracted on the basis of the respective positions of said N boundary candidates.

Claim 99 (Previously Presented): The method according to claim 95, wherein

said group of data are differential data obtained by differentiating image pick-up data of each of pixels obtained by picking up different image patterns in a predetermined image pick-up field in accordance with positions of said pixels,

said data value is a differential value of said image pick-up data, and

said boundary candidate is a position of said pixel.

Claim 100 (Previously Presented): The method according to claim 95, wherein N is two, and M is one.

Claim 101 (Previously Presented): The method according to claim 95, wherein said group of data are luminance data of each of pixels obtained by picking up different image patterns in a predetermined image pick-up field.

Claim 102 (Currently Amended): A data classification apparatus for classifying a group of data which a data storage unit stores into a plurality of sets in accordance with data values, comprising:

a first data dividing unit which estimates N boundary candidates (wherein N is an integer of 2 or more) for dividing said group of data into a first number of sets on the basis of said data values; and

a second data dividing unit which is electrically connected to the first data dividing

unit and extracts M boundary candidates (wherein M is smaller than N) and is used to divide

said group of data into a second number of sets smaller than said first number, under a

predetermined extraction condition, on the basis of said N boundary candidates.

Claim 103 (Previously Presented): The apparatus according to claim 102, wherein

said group of data are differential data obtained by differentiating image pick-up data

of each of pixels obtained by picking up different image patterns in a predetermined image

pick-up field in accordance with positions of said pixels,

said data value is a differential value of said image pick-up data, and

said boundary candidate is a position of said pixel.

Claim 104 (Previously Presented): The apparatus according to claim 102, wherein N

is two, and M is one.

Claim 105 (Withdrawn): An image processing method of processing image data

obtained by picking up an image in a predetermined image pick-up field, comprising:

setting luminance data, as a group of data, which is obtained by picking up an image

pattern of an object and an image pattern of a background which exist in the predetermined

image pick-up field; and

identifying a boundary between said object and said background by classifying said

luminance data by using the data classification method according to claim 95.

Claim 106 (Withdrawn): An image processing apparatus for processing image data

obtained by picking up an image in a predetermined image pick-up field, wherein

luminance data which is obtained by picking up an image pattern of an object and an

image pattern of a background which exist in said predetermined image pick-up field is set as

a group of data, and

a boundary between said object and said background is identified by classifying said

luminance data by using the data classification apparatus according to claim 102.

Claim 107 (Withdrawn): An exposure method of transferring a predetermined pattern

onto a substrate, comprising:

specifying an outer shape of said substrate by using the image processing method

according to claim 105;

controlling a rotational position of said substrate on the basis of said specified outer

shape of said substrate;

detecting a mark formed on said substrate after said rotational position is controlled;

and

transferring said predetermined pattern onto said substrate while positioning said

substrate on the basis of a mark detection result obtained in said mark detection.

Claim 108 (Withdrawn): An exposure apparatus for transferring a predetermined

pattern onto a substrate, comprising:

an outer shape specifying unit including the image processing apparatus according to

claim 106, which specifies an outer shape of said substrate;

a rotational position control unit which is electrically connected to the outer shape

specifying unit and controls a rotational position of said substrate on the basis of said outer

shape of said substrate which is specified by said image processing apparatus;

a mark detection unit which detects a mark formed on said substrate whose rotational

position is controlled by said rotational position control unit; and

a positioning unit which is electrically connected to the mark detection unit and

positions said substrate on the basis of a mark detection result obtained by said mark position

detection unit,

wherein said predetermined pattern is transferred onto said substrate while said

substrate is positioned by said positioning unit.

Claims 109-111 (Canceled).

Claim 112 (Withdrawn) (Currently Amended): A recording medium on which an

image processing control program executed by an image processing apparatus for processing

image data obtained by picking up an image in a predetermined image pick-up field is

recorded, wherein

said image processing control program comprises:

allowing luminance data which is obtained by picking up an image pattern of an

object and an image pattern of a background which exist in said predetermined image pick-up

field to be set as a group of data;

a data classification control program which allows said luminance data which a data

storage unit stores to be classified, comprising

allowing a first number allowing N of boundary candidates (where N is an integer of

2 or more) for dividing said group of data into a second first number of sets to be estimated

on the basis of said data values;

allowing a third number of M boundary candidates which is smaller than said first

number and is (wherein M is smaller than N) used to divide said group of data into a fourth

second number of sets smaller than said ~~second~~ first number, under a predetermined

extraction condition, to be extracted on the basis of said ~~first number of~~ N boundary

candidates; and

allowing a boundary between said object and said background to be identified.

Claims 113-114 (Canceled).

Claim 115 (Withdrawn): A device manufacturing method including a lithography

process, wherein

exposure is performed by using the exposure method according to claim 107 in said

lithography process.

Claim 116 (Canceled).